

What is claimed is:

1. A system for transfer of a signal to an in vivo device, said system

comprising:

an in vivo sensing device, the device comprising at least one signal

5 receiving unit, and

an external phased array antenna.

2. The system according to claim 1 wherein the phased array antenna includes  
at least two antennas.

3. The system according to claim 1 wherein the phased array antenna is  
10 configured for surrounding a portion of a body.

4. The system according to claim 1 wherein the phased array antenna is  
configured for transmission and reception.

5. The system according to claim 1 comprising at least an image sensor.

6. The system according to claim 1 wherein the sensing device includes an  
15 image sensor.

7. The system according to claim 1 wherein the sensing device is selected from  
a group consisting of: pH sensor, temperature sensor, pressure sensor,  
chemical sensor, biological sensor.

8. The system according to claim 1 wherein the sensing device comprises  
20 at least one storage unit.

9. The system according to claim 8 wherein the storage unit is a capacitor or a  
rechargeable battery.

10. The system according claim 1 wherein the sensing device comprises  
at least one antenna.

11. The system according to claim 10 wherein the antenna is an omni-directional antenna.
12. The system according to claim 1 wherein the signal receiving unit is an energy receiving unit configured to receive power to at least partially power the sensing device.
13. The system according to claim 1 wherein the phased array antenna is configured to transmit a signal having an active portion and a silent interval.
14. The system according to claim 13 wherein the silent interval lasts for a period in the order of magnitude of 1 msec.
15. The system according to claim 13 wherein the active portion includes RF bursts.
16. The system according to claim 13 wherein the active portion includes bursts of about 1 milijoule.
17. The system according to claim 13 wherein the active portion includes bursts at a frequency of about 1 GigaHertz.
18. The system according to claim 1 wherein the phased array antenna is configured to transmit a modulated signal.
19. The system according to claim 18 wherein the modulated signal is an amplitude modulated signal or frequency modulated signal.
20. The system according to claim 1 wherein the phased array antenna is configured to receive a signal from the sensing device and to be phased with the reverse order to that of receipt of the signal from the sensing device.

21. The system according to claim 1 wherein the phased array antenna is configured to receive a signal from the sensing device and to be phased with the reverse timing to that of a receipt of the signal from the sensing device.
- 5 22. A system for transfer of a signal to an in vivo device, said system comprising:  
an in vivo transmitting RF ID tag, the tag comprising at least one signal receiving unit, and  
an external phased array antenna.
- 10 23. A method for transfer of a signal to an in vivo sensing device, the method comprising the steps of:  
receiving a signal transmitted from said in vivo sensing device;  
recording an order of receipt said signal; and  
transmitting a signal to said in vivo sensing device using the reverse  
15 order of receipt of the transmitted signal from the said in vivo sensing device.
24. The method according to claim 23 wherein the order of receipt is a time array.
25. The method according to claim 23 comprising the steps of energizing at  
20 least one component of said in vivo sensing device.
26. The method according to claim 23 comprising the steps of:  
transmitting a signal from the in vivo sensing device;  
switching from transmit to receive mode;

receiving a signal which includes at least one active portion and at least one silent interval; and

switching from receive mode to transfer mode at an end of the active portion of the signal.

5 27. A method for measuring gastrointestinal motility comprising the steps of:

ingesting an RF ID tag;

receiving a transmitted signal from the RF ID tag;

recording a time array of receipt;

recording a strength array of receipt; and

10 performing triangulation thereby obtaining position of the RF ID tag.

28. A system for transfer of a signal to an in vivo device, the system

comprising:

a receiver to receive a signal transmitted from said in vivo device; and

a controller to:

15 record an order of receipt; and to

transmit a signal to said in vivo sensing device using a reverse order

of receipt of the transmitted signal from the said in vivo device.

29. The system according to claim 28 wherein the order of receipt is a time array.

20 30. The system according to claim 28 wherein the controller is to cause the energizing of at least one component of said in vivo sensing device.

31. An in vivo device comprising:

an imager;

an energy receiving unit; and

an omni-directional antenna.

32. The in vivo device of claim 31 comprising an energy storage unit to store energy received from the energy receiving unit.